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EXAMINER	
JARRETT, SCOTT L	

ART UNIT	PAPER NUMBER
3623	

DATE MAILED: 06/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/867,068	SCHEER, ROBERT H.	
	Examiner	Art Unit	
	Scott L. Jarrett	3623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 May 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 May 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *9/25/2001*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Double Patenting

1. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefore..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-22 are provisionally rejected under the judicially created doctrine of double patenting over claims 1-19 of copending Application No. 09/867,301. This is a provisional double patenting rejection since the conflicting claims have not yet been patented.

The subject matter claimed in the instant application is fully disclosed in the referenced copending application and would be covered by any patent granted on that copending application since the referenced copending application and the instant application are claiming common subject matter, as follows: the staging of items within a supply chain to meet expected use of the items and the determining of a fulfillment plan for the items in the supply chain.

Furthermore, there is no apparent reason why applicant would be prevented from presenting claims corresponding to those of the instant application in the other copending application. See *In re Schneller*, 397 F.2d 350, 158 USPQ 210 (CCPA 1968). See also MPEP § 804.

Title

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: System and Method For Predictive Maintenance & Service Parts Fulfillment in a Supply Chain

Information Disclosure Statement

3. The information disclosure statement filed on May 29, 2001 has been made part of the record in the application. It should be noted that the submitted IDS constitutes 5 pages and lists over a thousand pages of reference material. The applicant is invited to specifically point out those references, and specifically the portions of those references, that may be pertinent to the claimed invention.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding Claim 12, claim 12 is indefinite as to scope in the use of the term "as desired." Claim 12 is therefore rejected as being vague and indefinite. Examiner suggests that the applicant replace the phrase "as desired" with the phrase "as specified in the fulfillment plan" to overcome this rejection.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 1-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roddy et al., U.S. Patent Publication No. 2003/0055666 in view of Yang et al., U.S, Patent Publication No. 2001/0034673.

Regarding Claim 1 Roddy et al. teach a method and system for managing enterprise assets as part of a supply chain network wherein the system and method evaluates, identifies, predicts and manages the maintenance (service, repair, operation, overhaul) of the plurality of assets "...to avoid unexpected equipment failures and to accomplish maintenance and repair activities in an efficient manner", (Paragraphs 0024-0025; Abstract).

More specifically Roddy et al. teach an asset maintenance management method and system in a supply chain network (network: collection of businesses/entities, interconnected systems/processes, communication network) comprising:

- a customer maintenance system (Paragraph 0007; Figure 4) into which information pertaining to a work order (repair order, repair action; Paragraph 0082; Figure 9) is entered including information that identifies the piece of equipment (asset ID; Figure 2, Element 30) to be repaired and one or more items (parts, materials,

personnel, equipment, facilities, service center, etc.) expected to be used during a repair procedure (service; e.g. materials/resource availability, inventory management; Paragraphs 0082-0083, 0087);

- a customer system (agent server, application, module, software, "expert system", Paragraph 0086; Figures 1, 4, 9) in communication (Internet, global communication/information network; Paragraphs 0006, 0027; Figure 1) with the maintenance system which extracts (pulls, collects, real-time data collection, monitors, queries, etc., Paragraph 0007-0008; Figures 5, 6; Figure 7, Element 122) scheduled maintenance activity information to create an advanced (forecast, future, predicted, planned, projected, etc.) demand notice (signal, alert, message, etc.) order (work order, repair action, service recommendation, demand forecast, predicted repair/service/maintenance, purchase order; Paragraphs 0037; Figures 2, 3, 9) that identifies the items; and

- a distributor (maintenance repair centers, repair facilities) system in communication with a plurality of systems that respond to the advanced demand notice (message, signal) order (work/service order, work scope, service recommendation) to initiate the staging (placement, movement) of items expected to be used as part of the repair procedure ("The recommended action may be supplied directly into the train control system. At this time, the data center or service personnel may evaluate the most logical repair location in terms of various criteria, such as train proximity, parts, repair equipment availability, manpower availability, etc. The service recommendation automatically triggers the creation of an electronic work order 172 within a service shop

management system. A notification is then sent, such as via an e-mail message or by providing information on an Internet web page, to the service team detailing the parts and labor necessary for a timely and accurate repair.", Paragraph 0086; "As soon as the service team receives information about the necessary repair, team members gather or reserve parts, equipment and personnel needed to perform the corrective action.", Paragraph 0087, "...inventory management, will be improved to have the correct part available when it is needed.", Paragraph 0081; Paragraphs 0082-0088; Figures 3-4, 8, 9).

FIG. 1

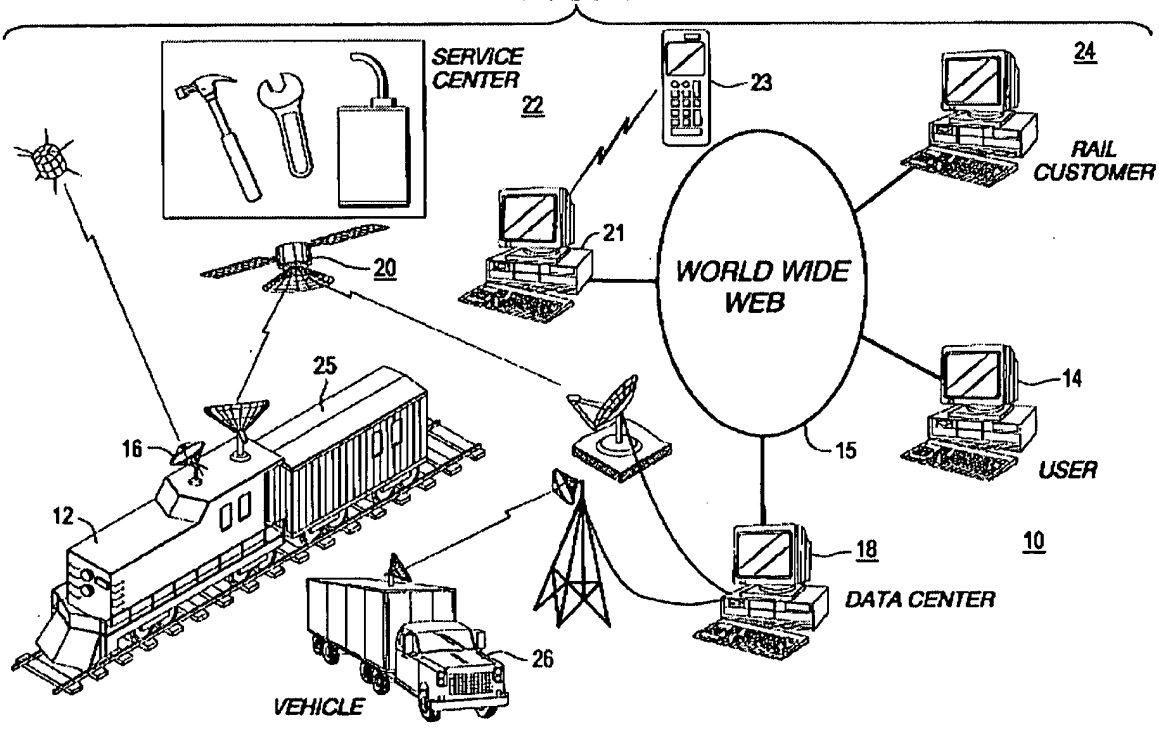

Figure 1: Roddy et al., Figure 1, Supply Chain/Enterprise Network

FIG. 2

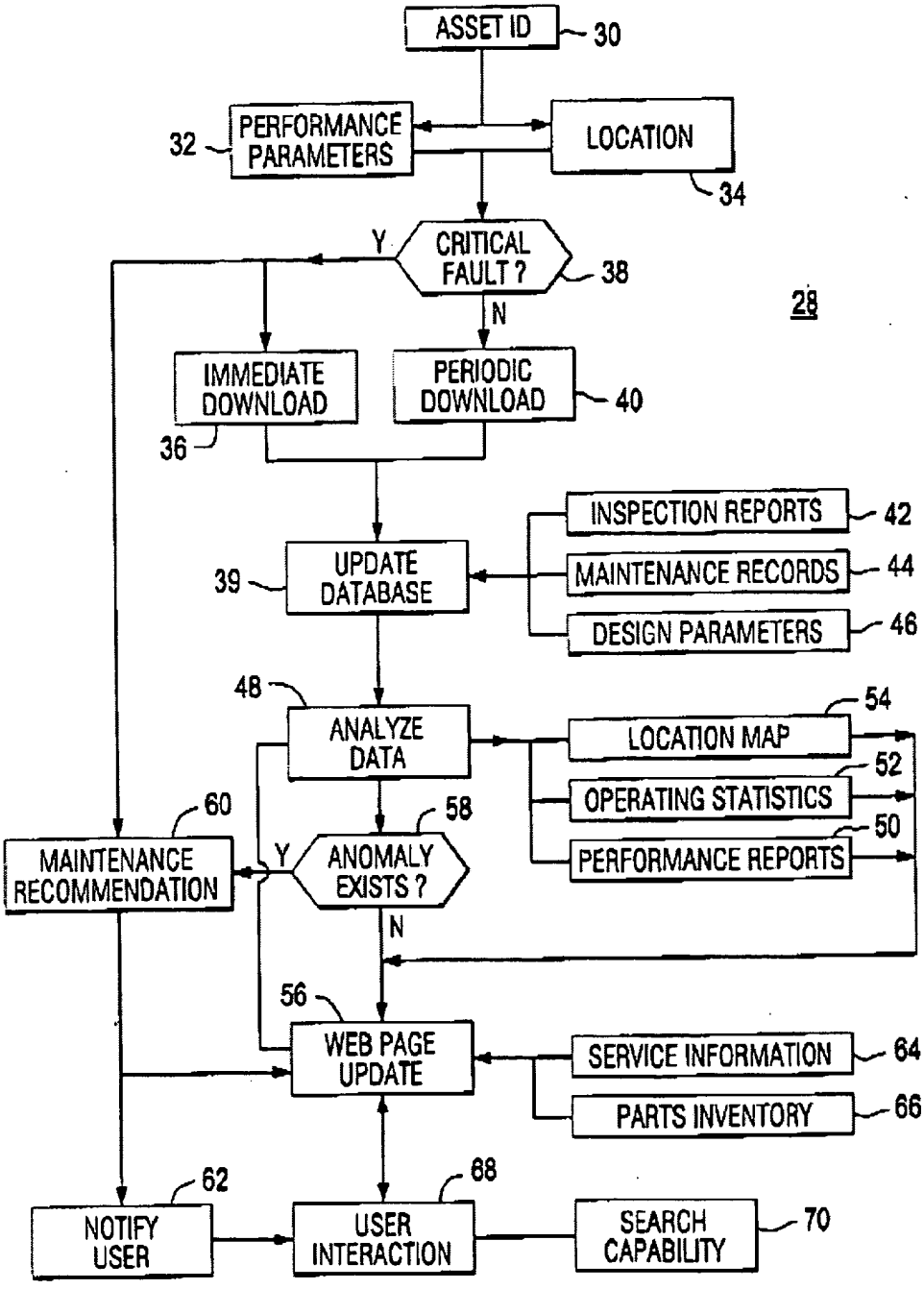

Figure 2: Roddy et al., Figure 2, Enterprise Asset Maintenance Management

FIG. 4

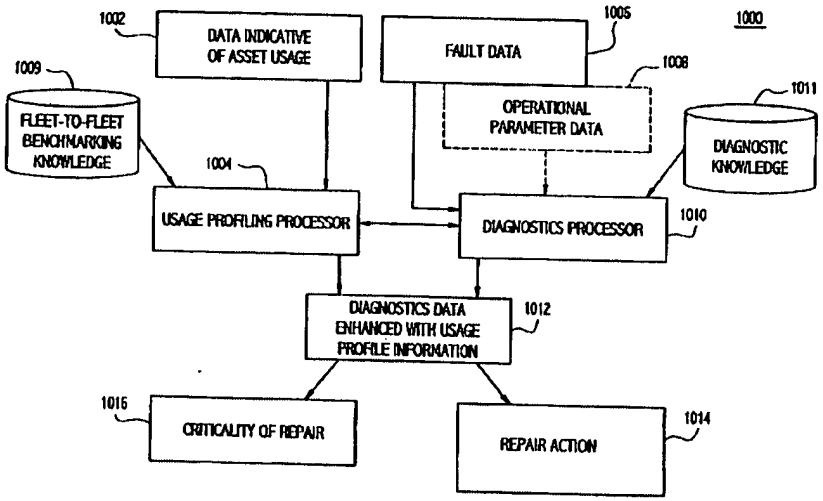

Figure 3: Figure 4, Asset Diagnostic System and Method

FIG. 8

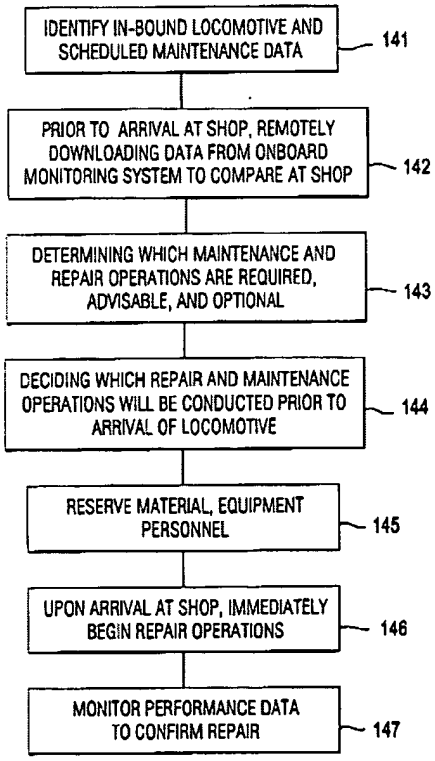

Figure 4: Roddy et al., Figure 8, Maintenance Information Extraction/Collection System and Method

FIG. 9

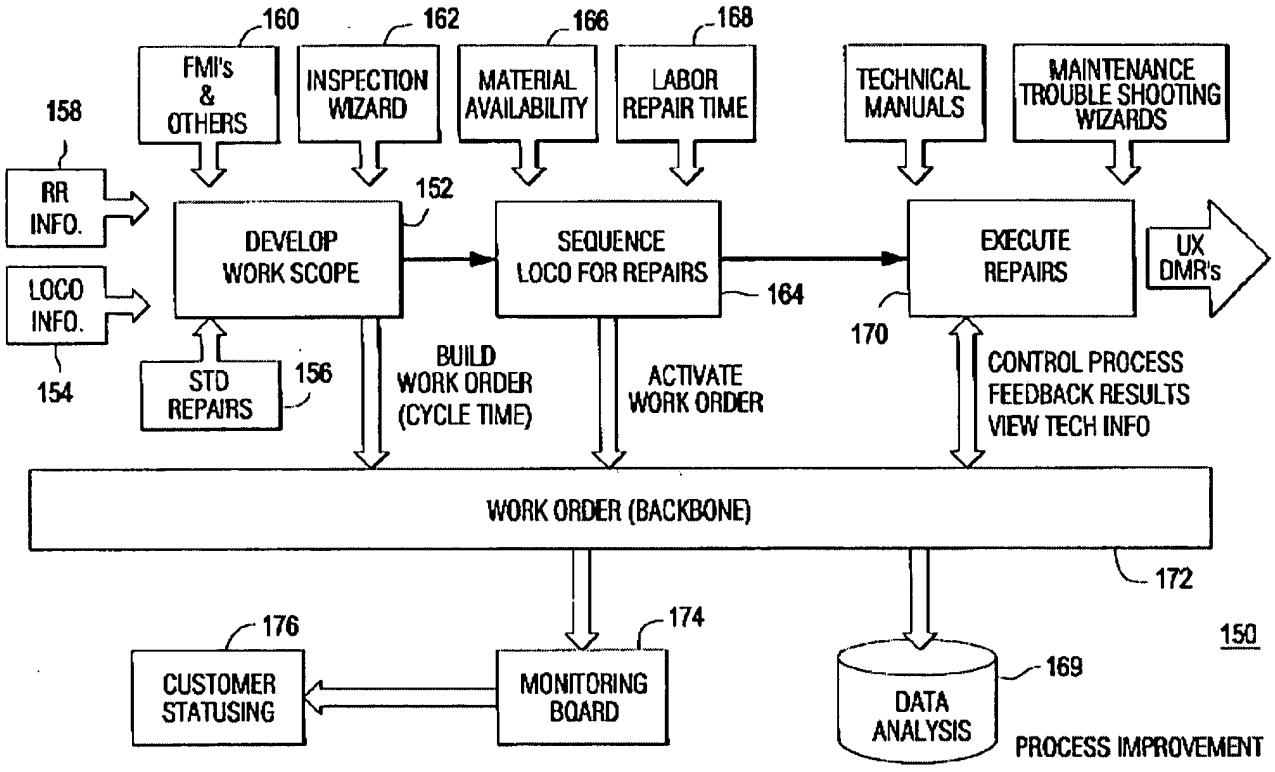

Figure 5: Roddy et al., Figure 9, Maintenance Work/Repair Order System and Method

While Roddy et al. teach that the asset maintenance management system and method utilizes expert systems (technologies, methods, techniques, sub-systems; Paragraph 0086) and well known e-Business technologies (Paragraph 0081) Roddy et al. does not expressly teach that the maintenance management system and method utilizes well known agent technologies, method, systems or techniques.

Official notice is taken that the use of intelligent agents (artificial intelligence, agent based systems) in e-Business, eCommerce, Supply Chain Management and the like is well established and well known. More specifically it is old and well known that a network of intelligent software modules (agents) can together dynamically (collaboratively) manage the supply chain wherein each module (agent) is an: expert at its task, thereby optimizing its goals; coordinates its decisions with other modules, thereby optimizing supply chain wide goals; and can quickly responds to changes in cooperation with other modules.

It would have been obvious to one skilled in the art at the time of the invention to modify the method and system for asset maintenance management, specifically leveraging the system's utilization of expert systems and e-Business technologies, as taught by Roddy et al., to utilize an intelligent agents to manage the system and method for predictive maintenance and service parts fulfillment in a supply chain network in a substantially automated manner.

Regarding Claim 2 Rodd et al. teach that the method and system for asset maintenance management in a supply chain network (a collection of cooperative businesses/processes, etc.) further comprises a supplier system (e.g. a supplier of locomotives; Paragraph 0003) that cooperates (works with, communicates with, connects to, collaborates with) the distributor system (maintenance service centers; Paragraph 0026; Figure 1).

While Roddy et al. teach the utilization of inventory management systems, parts/item inventories as well as the determining of parts availability and the like in response/relation to the advance (future, forecast, schedule) repair notices (orders, work order, repair orders) Roddy et al. is silent on which specific entity supplies, provides or replenishes the expected repair items into the supply chain.

Yang et al. teach a service parts inventory management and planning method, system and marketplace (portal), in the analogous art of service planning/asset maintenance, for providing service parts (items, materials, resources) from a plurality of suppliers (sellers, vendors) into a supply chain network (electronic marketplace, portal; Abstract) for the purpose of facilitating the planning, management, distribution and fulfillment of service parts in a supply chain network comprising a plurality of suppliers, distributors and customers (multi-echelon inventory systems; Paragraphs 0007-0008; Figures 1-2).

Further Yang et al. teach that "A primary goal in service planning is therefore maintaining adequate service parts inventory to satisfy customer demands as they occur. In multi-echelon inventory systems, the locations from which inventory is deployed may significantly impact the overall service level achieved.", (Paragraph 0005).

More generally Yang et al. teach that the service parts inventory management and planning method and system further comprises:

- a supply chain network including a plurality of collaborating planner systems (ERP/enterprise systems; Figure 3, Element 48; Paragraphs 0003, 0007, 0030, 0050);

- access by the plurality of planner systems to a plurality of service parts (items) information including but not limited to demand forecasts wherein demand forecasts for "...service parts based on data concerning the lifespan of products and their constituent parts, failure rates of products and their constituent parts, and any other suitable information.", (Paragraphs 0024, 0034);

- generating inventory, fulfillment and replenishment plans according to a plurality of information including but not limited to demand forecasts (Paragraphs 0018-0019);

- staging (locating, placing, stocking) service parts in accordance with the fulfillment/inventory plan (i.e. in response to future/forecasted demand, orders, etc.; "A manager application receives the inventory plan and, according to the inventory plan, initiates one or more services in an attempt to resolve at least a portion of the service parts excesses or needs at one or more of the stocking locations through interaction with one or more other entities.", Paragraph 0007);

- a procurement, order management and planning subsystem enabling customers, suppliers and distributors to collaborate (communicate) to obtain (purchase) service parts/items (Paragraphs 0020, 0038, 0042, 0046); and

- a service scheduling subsystem which coordinates parts requirements with service requests based on available service parts and ensures that parts are available at the repair site on or before the schedule service date (Paragraphs 0041-0043).

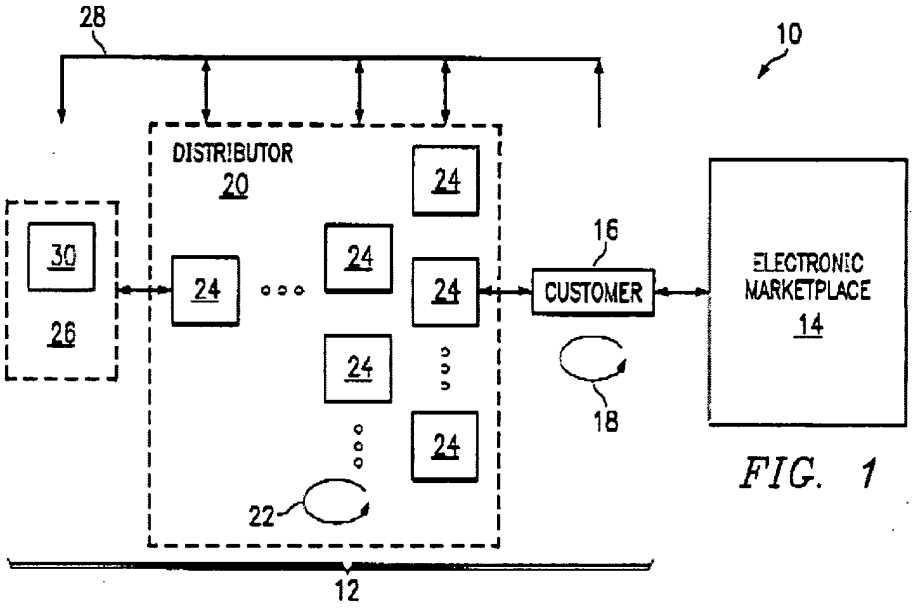

FIG. 1

Figure 6: Yang et al., Figure 1

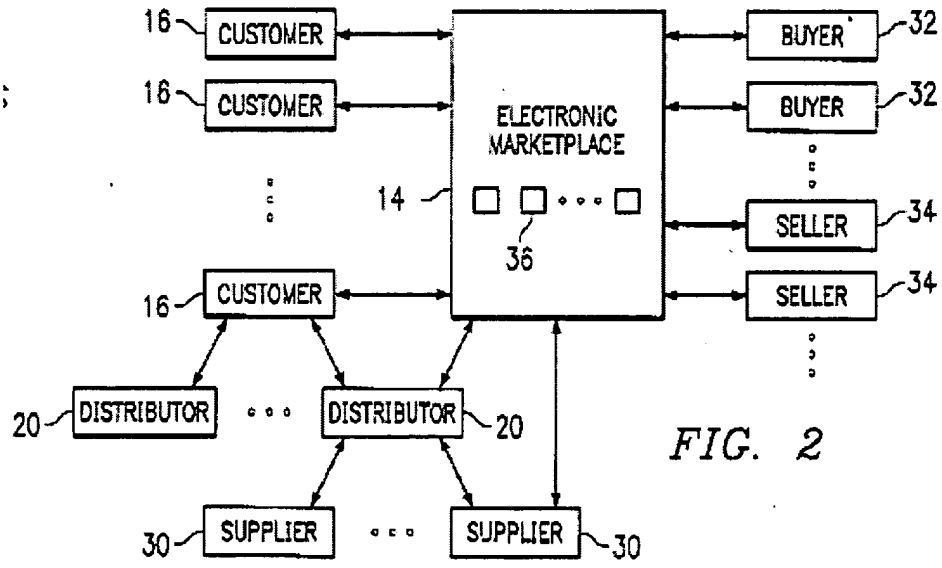

FIG. 2

Figure 7: Yang et al., Figure 2, Supply Chain Network

It would have been obvious to one skilled in the art at the time of the invention that the asset maintenance management system and method, specifically the system's focus on improving the efficiency (availability) of the managed assets through predictive and preventative maintenance, as taught by Roddy et al. would have benefited from leveraging the service parts inventory management and planning system, method and marketplace to improve service parts availability and predictability resulting in less downtime (equipment/materials unavailability, unexpected failures, etc.), lower costs and improved customer satisfaction in view of the teachings of Yang et al. (Yang et al.: Paragraph 0009).

Regarding Claim 3 Roddy et al. teach an asset maintenance management system and method wherein the customer maintenance system comprises a computerized maintenance management system (Paragraph 0027, 0029; Figure 1).

Regarding Claim 4 Roddy et al. teach that the customer maintenance system comprises an enterprise asset management system as discussed above.

Regarding Claim 5 Roddy et al. teach an asset maintenance management system wherein the customer system (agent server, "expert system" – Paragraph 0086, application, module, software; Figures 1, 4, 9) comprises several subsystems (intelligent agents, modules, components, code, etc.) that extract (pull, collect, real-time data collection, monitor, query, etc., Paragraphs 0007-0008; Figures 5, 6; Figure 7, Element

122) information from the customer maintenance and other systems in response to a user entering or modifying a work order (Paragraphs 0029, 0035, 0078, 0084; Figures 2, 9).

Regarding Claim 6 Roddy et al. teach an asset maintenance management system wherein the distributor system(s) comprises a demand forecast (advance demand) subsystem (agent, module, component, application, etc.) that uses the forecast demand data (advance demand notice, message, alert, etc.) to determine (select, calculate) the resources, materials (parts, personnel, equipment) and location (service facility) to execute the maintenance/service work order (Paragraph 0081; Figure 9).

While Roddy et al. teach the utilization of inventory management systems as well as the staging of resources/items necessary for the repair of an enterprise asset Roddy et al. is silent on the details of the inventory management system or the development of a fulfillment (inventory) plan.

Yang et al. teach that the service parts inventory management and planning method and system, in the analogous art of service planning/asset maintenance, for the purposes of providing service parts into a supply chain creates/generates and utilizes inventory, fulfillment and replenishment plans (Paragraphs 0018-0019).

Yang et al. further teach that the service parts inventory management and planning system and method stages (stocks, locates) service parts (items) in the supply chain network in accordance with the fulfillment/inventory plan which is developed/generated in response to future/forecasted demand ("A manager application receives the inventory plan and, according to the inventory plan, initiates one or more services in an attempt to resolve at least a portion of the service parts excesses or needs at one or more of the stocking locations through interaction with one or more other entities.", Paragraph 0007; Paragraphs 0018-0019).

It would have been obvious to one skilled in the art at the time of the invention that the asset maintenance management system and method, specifically the system's focus on improving the efficiency (availability) of the managed assets through predictive and preventative maintenance, as taught by Roddy et al. would have benefited from leveraging the service parts inventory management and planning system, method and marketplace, specifically the systems ability to develop and utilize fulfillment plans, to improve service parts availability and predictability resulting in less downtime (equipment/materials unavailability, unexpected failures, etc.), lower costs and improved customer satisfaction in view of the teachings of Yang et al. (Yang et al.: Paragraph 0009).

Regarding Claims 7 and 20 Roddy et al. teach an asset maintenance management system and method wherein the system comprises a subsystem

(intelligent agent, software, module, component) that determines the probability that each item (part, component, resource) in the demand forecast (advanced demand notice, by the customer) will be needed during the repair procedure, for use in staging (locating, moving) the items within the supply chain ("...to generate a prediction of a failure in a mobile asset and at least one likely repair likely to prevent the failure in the mobile asset. A repair weight indicative of the probability that the repair will prevent the predicted failure is determined.", Paragraph 0008; "...make probabilistic determination of a relationship between a predicted failure, and a likely corrective action to prevent the occurrence of the failure.", Paragraph 0052; Paragraphs 0025, 0051-0054; Abstract).

Regarding Claim 8 Roddy et al. teach an asset maintenance management system and method further comprising a subsystem (intelligent agent, software module, component, code) that determines and stages all the necessary service repair resources as discussed above.

The utilization of one or more sources for an item and/or the utilization of one or more equivalent items (i.e. sourcing alternatives; e.g. asking a second supplier to provide a needed repair item if the first/primary supplier is unable to meet the order) in a supply chain is old and well known. However, Roddy et al. is silent on the specific implementation part/item sourcing (selection) process used by the system.

Yang et al. teach a service planning and management system, in an analogous art of asset maintenance management, wherein the system further comprises an order management and fulfillment subsystem that enables a plurality of suppliers to fulfill (broker, bid) an order/item (i.e. sourcing alternatives wherein each supplier represents an alternative source for the same or similar items listed on the work order).

It would have been obvious to one skilled in the art at the time of the invention that the enterprise asset maintenance system and method, specifically the systems focus on improving the efficiency (availability) of the managed assets through predictive and preventative maintenance, as taught by Roddy et al. would have benefited from leveraging the service parts inventory management and planning system, method and marketplace, specifically the system's ability to order/source items/parts from any of a plurality of vendors in the parts marketplace, to improve service parts availability and predictability resulting in less downtime (equipment/materials unavailability, unexpected failures, etc.), lower costs and improved customer satisfaction in view of the teachings of Yang et al. (Yang et al.: Paragraph 0009).

Regarding Claim 9 and 21 Roddy et al. teach a method and system for asset maintenance management further comprising a transportation (logistics, shipping; e.g. train; Figure 1) system in communication (linked; Figure 1) with the distributor system (service centers).

Roddy et al. does not expressly teach that a transportation (logistics, shipping, etc.) system coordinates with the distributor system to assist in moving the items within the supply chain.

Yang et al. teach that the service parts inventory management and planning method and system, in the analogous art of service planning/asset maintenance, for the purposes of providing service parts into a supply chain includes the collaboration (coordination) between a plurality of "enterprise systems" (planner systems) including but not limited to the collaboration between distributors, suppliers, customers and the like (Paragraphs 0008-0009, 0043).

Yang et al. does not expressly teach that a logistics/transportation provider is part of the service parts inventory management and planning method, system and marketplace.

Official notice is taken that the participation of a logistics/transportation provider in a supply chain network is old and very well known and provides a mechanism for the planning and management of materials (items, resources, etc.) flow/movement between/amongst the plurality of enterprises in the supply chain network.

It would have been obvious to one skilled in the art at the time of the invention that the asset maintenance management system and method, specifically the system's

focus on improving the efficiency (availability) of the managed assets through predictive and preventative maintenance, as taught by Roddy et al. would have benefited from leveraging the service parts inventory management and planning system, method and marketplace to improve service parts availability and predictability resulting in less downtime (equipment/materials unavailability, unexpected failures, etc.), lower costs and improved customer satisfaction in view of the teachings of Yang et al. (Yang et al.: Paragraph 0009).

Further it would have been obvious that the system and method for predictive maintenance & service parts fulfillment in a supply chain network in view of the combined teachings of Roddy et al. and Yang et al. would have included as one of the plurality of participating entities (enterprises) in the supply chain network a logistics/transportation provider, having their own "planning system" to be integrated into the supply chain, in order to facilitate, plan and manage the transportation (shipment, movement) of items amongst/between the plurality of enterprises in the supply chain network; the resultant system providing more robust scheduling and planning capabilities.

Regarding Claims 10 and 11 Roddy et al. teach an asset maintenance management system and method wherein the plurality of systems in the supply chain (i.e. transportation, supplier, distributor, customer, etc.) are communicate and monitor the movement of the repair items within the supply chain (Paragraphs 0007-0008, 0026-0029; Figure 1).

Regarding Claim 12 Roddy et al. teach an asset maintenance management system ensures that service items (parts, resources) are monitored to insure that the work order can be executed as planned as discussed above.

Roddy et al. does not expressly teach an enterprise asset maintenance management system and method wherein the system (intelligent agent, component, code, module) forms (creates, generates) a corrective (alternative, updated, revised) fulfillment plan if the subsystem determines that the items are not being moved with the supply chain as desired (per plan).

Official notice is taken that it is old and well known that one of the responsibilities/goals of a supply chain and other business systems related to the flow of materials is to ensure that items are moved within the supply chain as desired (e.g. on-time, right place, right time, etc.) and that if the items are not being moved within the supply chain according to plan/schedule (as desired) that the system/supply chain needs to take corrective action to prevent the system/supply chain interruptions due errant (missing, misrouted, incorrect, late, etc.) materials.

It would have been obvious to one skilled in the art at the time of the invention that the asset maintenance management system and method, with its ability to schedule, monitor and manage the plurality of service resources, needed to

repair/maintain assets, based on a plurality of constraints (e.g. part/resource availability), would have benefited from employing a number of well known supply chain (work flow, enterprise planning) techniques including taking corrective action if the items in the supply chain are not being moved as desired; the resultant system ensuring that items are being moved within the supply chain according to the developed (desired) plan/schedule).

Regarding Claim 13 Roddy et al. teach a method and system for managing asset maintenance wherein the system comprises an equipment knowledge base (database) for determining the probability of need for each item for use in staging the items within the supply chain ("...to generate a prediction of a failure in a mobile asses and at least one likely repair likely to prevent the failure in the mobile asset. A repair weight indicative of the probability that the repair will prevent the predicted failure is determined.", Paragraph 0008; "...make probabilistic determination of a relationship between a predicted failure, and a likely corrective action to prevent the occurrence of the failure.", Paragraph 0052; Paragraphs 0025, 0051-0054; Abstract).

Regarding Claim 14 Roddy et al. teach an asset maintenance management system and method wherein the customer system (agent server, module) extracts (pulls, retrieves, collects, monitors) information from the customer maintenance system for populating the equipment knowledge base (database), the information being used in determining the probability of need of items specified in future work orders (advanced

demand notice, demand forecast; Paragraphs 0007-0008, 0025, 0051-0054; Abstract; Figures 5-7).

Regarding Claim 16 Roddy et al. teach an asset maintenance management system (system, marketplace, computer network, portal, etc.) comprising:

- a customer system (agent server, computer, modules, software, code; Paragraph 0007; "expert system", Paragraph 0086, Figures 1, 4, 9; Figure 4) hosting (containing, including, comprising) a collection of customer subsystems (agents, code, objects, modules) for interfacing and extracting from at least one of (one or more) a condition monitoring system (Paragraphs 0026, 0052), maintenance management system (Abstract) and a procurement system (Paragraphs 0102);

- a distributor (e.g. service maintenance center) system (agent server) hosting (including, providing, comprising) a collection of distributor subsystems (modules, components) for interfacing with at least one of (one or more) a supply chain system (Abstract; Paragraphs 0007-0008), an inventory management system (Paragraphs 0034 0081), a logistics (transportation; Figure 1) system, and an equipment knowledge base (Paragraph 0029); and

- a system that routes messages (calls, information, data) between the distributor and customer systems to effect the movement of items within the supply chain ("The service recommendation automatically triggers the creation of an electronic work order 172 within a service shop management system. A notification is then sent, such as via an e-mail message or by providing information on an Internet web page, to

the service team detailing the parts and labor necessary for a timely and accurate repair.", Paragraph 0086; Paragraphs 0082-0088; Figures 3-4, 8, 9).

While Roddy et al. teach that the asset management system and method utilizes expert systems and well known e-Business technologies (Paragraphs 0081, 0086) Roddy et al. does not expressly teach the utilization well known agent or messaging technologies (techniques, architecture, design pattern, method, systems, etc.).

Yang et al. teach that the service parts inventory management and planning system, in an analogous art of service planning/asset maintenance, for the purposes of providing service parts into a supply chain utilizes a transaction broker for the purposes of facilitating the transactions (communications, messages) between the plurality of entities and systems in the supply chain network (Paragraph 0028).

Yang et al. does not expressly teach that the service parts method, system and marketplace utilize intelligent agents (artificial intelligence).

Official notice is taken that the use of intelligent agents (artificial intelligence, agent based systems) in e-Business, eCommerce, Supply Chain Management and the like is well established and well known. More specifically it is old and well known that a network of intelligent software modules (agents) can together dynamically (collaboratively) manage the supply chain wherein each module (agent) is an: expert at

its task, thereby optimizing its goals; coordinates its decisions with other modules, thereby optimizing supply chain wide goals; and can quickly responds to changes in cooperation with other modules.

Further official notice is taken that the use of messaging (messages, queues, brokers, etc.) technologies, systems, design patterns and the like in intelligent agent systems is old and well known in the art for providing a efficient mechanism for managing the dynamic collaboration between agents.

It would have been obvious to one skilled in the art at the time of the invention that the asset maintenance system and method as taught by Roddy et al. would have benefited from leveraging the service parts inventory management and planning system, method and marketplace to improve service parts availability and predictability resulting in less downtime (equipment/materials unavailability, unexpected failures, etc.), lower costs and improved customer satisfaction in view of the teachings of Yang et al. (Yang et al.: Paragraph 0009).

Further it would have been obvious to modify the system and method for predictive maintenance & service parts fulfillment in a supply chain network in view of the combined teachings of Roddy et al. and Yang et al. to utilize agent technologies, tools and techniques (artificial intelligence, expert systems, etc.) to facilitate the collaboration and implementation of the plurality of enterprises in the supply chain network; the resultant system being more capable of managing the predictive and preventative maintenance of enterprise assets in a substantially automated manner.

Regarding Claim 17 Roddy et al. does not expressly teach the utilization of intelligent agents or the subsequent use of a brokerage status database to track messages passing through the manager/broker.

Yang et al. teach that the service parts inventory management and planning system, in an analogous art of service planning/asset maintenance, for the purposes of providing service parts into a supply chain utilizes a transaction broker for the purposes of facilitating the transactions (communications, messages) between the plurality of entities and systems in the supply chain network (Paragraph 0028).

Yang et al. does not expressly teach that the service parts method, system and marketplace utilizes intelligent agents.

Official notice is taken that the use of intelligent agents (artificial intelligence, agent based systems) in e-Business, eCommerce, Supply Chain Management and the like is well established and well known. More specifically it is old and well known that a network of intelligent software modules (agents) can together dynamically (collaboratively) manage the supply chain wherein each module (agent) is an: expert at its task, thereby optimizing its goals; coordinates its decisions with other modules, thereby optimizing supply chain wide goals; and can quickly responds to changes in cooperation with other modules.

Further official notice is taken that the use of messaging (messages, queues, brokers, etc.) technologies, systems, design patterns and the like in intelligent agent systems is old and well known in the art for providing a efficient mechanism for managing the dynamic collaboration between agents and more specifically the utilization of a broker and the tracking/monitoring of communication (messages) between the plurality of intelligent agents is old and well known.

It would have been obvious to one skilled in the art at the time of the invention that the asset maintenance system and method as taught by Roddy et al. would have benefited from leveraging the service parts inventory management and planning system, method and marketplace to improve service parts availability and predictability resulting in less downtime (equipment/materials unavailability, unexpected failures, etc.), lower costs and improved customer satisfaction in view of the teachings of Yang et al. (Yang et al.: Paragraph 0009).

Further it would have been obvious to modify the system and method for predictive maintenance & service parts fulfillment in a supply chain network in view of the combined teachings of Roddy et al. and Yang et al. to utilize an agent technologies, tools and techniques (artificial intelligence, expert systems, etc.) – including but not limited to the use of a database to track message statuses passing through a central manager/broker, to facilitate the collaboration and implementation of the plurality of enterprises in the supply chain network; the resultant system being more capable of

managing the predictive and preventative maintenance of enterprise assets in a substantially automated manner.

Regarding Claim 18 Roddy et al. teach an asset management system and method wherein at least one of the distributor system(s) accepts a demand forecast (advanced demand notice, message, order) that initiates the movement of items within the supply chain ("The recommended action may be supplied directly into the train control system. At this time, the data center or service personnel may evaluate the most logical repair location in terms of various criteria, such as train proximity, parts, repair equipment availability, manpower availability, etc. The service recommendation automatically triggers the creation of an electronic work order 172 within a service shop management system. A notification is then sent, such as via an e-mail message or by providing information on an Internet web page, to the service team detailing the parts and labor necessary for a timely and accurate repair.", Paragraph 0086; "As soon as the service team receives information about the necessary repair, team members gather or reserve parts, equipment and personnel needed to perform the correction action.", Paragraph 0087, "...inventory management, will be improved to have the correct part available when it is needed.", Paragraph 0081; Paragraphs 0082-0088; Figures 3-4, 8, 9).

Regarding Claim 19 Roddy et al. teach a method and system for asst management wherein the movement of items in the supply chain is performed as a

function of a probability of need from the items (parts, components, pieces) is determined (selected) using the information in the equipment knowledge base (database; Paragraph 0029; Figure 2, Element 29; Figure 4) that determines the probability that each item in the demand forecast (advanced demand notice) will be needed during the repair procedure, for use in staging (locating, moving; "A repair weight indicative of the probability that the repair will prevent the predicted failure is determined.", Paragraph 0008; "...make probabilistic determination of a relationship between a predicted failure, and a likely corrective action to prevent the occurrence of the failure.", Paragraph 0052; Paragraphs 0007, 0025, 0051-0054; Abstract).

Regarding Claim 22 Roddy et al. wherein the customer maintenance system comprises a component (module, code, sub-system) of an enterprise resource planning (ERP) system (Abstract; Paragraphs 0007-0008), wherein ERP (enterprise resource planning) is a well known term for the broad set of activities supported by multi-module application software (system, apparatus) that assists manufacturers or other businesses manage the important parts of its business, including product planning, parts purchasing, maintaining inventories, interacting with suppliers, providing customer service, and tracking orders.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Palusamy et al., U.S. Patent No. 5,311,562, teach an enterprise (plant, facility) maintenance management system wherein the system monitors, collects and analyzes a plurality of asset information to perform predictive maintenance.

- Maguire et al., U.S. Patent No. 5,331,579, teach an expert system that utilizes a plurality of models including probabilistic and deterministic models to predict the condition and maintenance necessary on enterprise assets.

- Jones et al., U.S. Patent No. 5,596,507, teach a method and expert system for performing predictive asset maintenance.

- Hoth et al., U.S. Patent No. 5,710,723, teach a method and system for predictive (pre-emptive, pro-active) enterprise asset maintenance management wherein a plurality of information is collected and analyzed, including but not limited to failure probability, in order to predict future maintenance needs.

- Vines et al., U.S. Patent No. 6,006,171, teach an enterprise asset management system comprising a commercially available computerized maintenance management system (CMMS) and a process control system.

- Piety et al., U.S. Patent No. 6,192,235, teach a method and expert system (rules base, knowledge base, inference engine) for predictive enterprise maintenance management comprising predictive maintenance and equipment databases.

- Beamon et al., U.S. Patent No. 6,614,882, teach a proactive (predictive) enterprise asset maintenance system wherein the system collects (extracts) and analyzes a plurality of asset and business information to predict and prioritize maintenance operations. Beamon et al. further teach that the proactive maintenance system creates/generates, dispatches and assigns maintenance work orders. Beamon et al., further teaches that the system can identify specialized equipment and/or skills necessary to complete the work order.

- Aragones et al., U.S. Patent No. 6,832,205, teach an enterprise asset maintenance management system (service planning and management) wherein the system predicts the time (future, forecasted demand/service need) and cost (materials, items, parts) of a product (asset) repair/maintenance.

- Spira et al., U.S. Patent Publication No. 2002/0035495, teach an enterprise asset maintenance management method and system (maintenance services, service planning) involving the collaboration of a plurality of business and business systems including but not limited to a computerized maintenance management system, an enterprise resource planning system and an enterprise asset management system. Spira et al. further teach that the maintenance services system takes a pro-active reliability approach, with preventative maintenance schedules and a high degree of planning and scheduling.

- Lyon et al., U.S. Patent Publication No. 2002/0103690, teach a demand fulfillment method and system for utilizing customer orders (pull, customer driven) and parts replenishment information to generate a wok schedule and material delivery

schedule (staging) for an enterprise. Lyon et al. further teach that the fulfillment system further comprises the collaboration between a plurality of suppliers, logistics providers and manufacturers.

- Andel, Tom, Maintenance Keeps Supply Chains Strong, teaches the importance of asset maintenance planning and management in a supply chain. Andel further teaches that commercially available maintenance planning systems assist companies in managing/controlling service (spare) parts inventory.

- Songini, Mark, Navy Embarks on supply-chain mission, teaches the launch of an enterprise resource planning supply chain system to improve the forecasting, repair scheduling and inventory management processes at the US Navy in 1999. Songini teaches that the asset management maintenance system automatically tracks asset maintenance and parts replacement.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott L. Jarrett whose telephone number is (571) 272-7033. The examiner can normally be reached on Monday-Friday, 8:00AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hafiz Tariq can be reached on (571) 272-6729. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

6/1/2005
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